CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

C-O-N-F-I-D-E-N-T-I-A-L

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SUBJECT	Nuclear Institute of Professor Hertz near Sukhumi	DATE DISTR.	10 May 1955 25X1
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This is UNEVALUATED Information

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THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
THE APPRAISAL OF CONTENT IS TENTATIVE.
(FOR KEY SEE REVERSE)

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1. The nuclear institute of Professor Hertz was located about five kilometers south of Sukhumi (N 43-00, E 41-02) on the Black Sea in the Trans-caucasus area. The institute area was bordered by an open field on the north, the single-track Sukhumi-Tbilisi railroad line on the east, Guiripsi village[1] on the south, and the Black Sea on the west. A reinforced road, more than five meters wide, ran parallel to and about 1,000 meters from the railroad line. In addition to these landmarks, there was an extensive tree nursery south of the institute area. Vulnerable points of the institute included the institute building with its annex, the power station, the boiler house with the gas works, and the electrolysis department with its hydrogen and oxygen containers.

2. In 1945, Professor Hertz, who until then had worked in Research Laboratory II at the Siemens Plant in Berlin, accepted a Soviet offer to establish a nuclear research institute in the USSR. Professor Hertz allegedly promised that he would hire German scientists and technicians for the USSR and actually took along some of his former students, who were already independent scientists. In early 1946, this group of German experts established a new research institute in the former Beyar Castle in the Agudzera area located south of Sukhumi. Since there was no Soviet technical personnel available for this project, the Soviets selected qualified German personnel among the PWs, allegedly at the suggestion of Professor Hertz. The former castle with its galleries was rebuilt, and Soviet labor units erected workshops, operational buildings, and apartment houses for German and Soviet personnel. In 1947, the institute was ready to being operation. The technical installations at the Kaiser Wilhelm Institute in Berlin had allegedly been dismantled.

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NOTE: Washington distribution indicated by "X"; Field distribution by "#".)

3. The institute had no special designation. [redacted] 25X1 it was controlled by the IX Directorate in Moscow.

4. Power plants of the Kura Valley in the Caucasus Mountains were the main power source of the institute. No information was obtained on the output and maximum capacity of this power system. The institute had its own power station and was also connected to the transformer station of the second institute of Sinop. 25X1

5. Some of the leading personnel of the institute are listed below. The engineers were allegedly former assistants of Professor Hertz in Berlin.

Soviet chief:	General Vashavilli (fnu).
German chief:	Professor Gustav Hertz.
German deputy chief and expert for mass spectrographs:	Dr. Ing. Werner Schuetz.
Chief of the chemical laboratory:	Dr. Ing. Karl Zulke.
Construction of counter tubes:	Dr. Ing. Werner Hartmann.
Construction of cascades:	Dr. Ing. Justus Muhlenpfordt.
Chief mechanic:	Otto Helm, from Leipzig, a convinced Communist.
Chief in charge of high vacuum soldering:	Dr. Ing. Helmuth Bumm.

The Soviet experts included:

Chief of the workshop:	Major Bizayev (fnu), who had negotiated with Professor Hertz in Berlin.
	Professor Kashavin (fnu), no further information available.

The German PW experts were:

Dr. Ing. Richard Doll, a physicist who is at PW Camp No. 5110-48 in Moscow.

Ing. Pock (fnu), a physicist.

Ing. Schroeder (fnu), a physicist.

Willy Schreiber, mechanic in the chemical laboratory who, at the present time, is in Klein Bockenhain (Kleinbockenheim) near Worms.

Peter Hoppmann, mechanic, worked in the mechanical workshop and is now in Hamburg/Lockstedt. 25X1

Hans Hux, technical draftsman in the designing office, now lives in Tuttlingen.

Bernhardt Weber, blacksmith, worked in the forge, now lives in Datteln in Westphalia.

6. [redacted] 25X1

[redacted] Research projects handled by Professor Hertz included the construction of a mass spectrograph and experiments in the field of isotope separation. It could not be determined whether research orders were given by the Soviets or if the activities were conducted on Professor Hertz's own suggestion. 25X1

7. All development and research activities were hampered by the lack of materials. The diffusion pumps received [redacted] proved to be leaky and had to be completely overhauled. The overhauling required a long time. Dr. Muhlenpfordt, who was in charge of the construction of cascades, grumbled frankly about the lack of materials and the delay of incoming shipments, because of which he was unable to meet his target dates. He said that in the United States cascades could be bought "in a shop", while he had to "fool around" with inadequate material. In spite of all these difficulties, the construction of eight mass spectrographs was accomplished by November 1949. These were accepted as good by a commission from Moscow. Other activities included experiments for the production of a synthetic material diaphragm, which allegedly had been started in a new laboratory. These diaphragms were said to be equal in quality to pure nickel diaphragms. 25X1

8. In 1948 or 1949, Professor Hertz was in Moscow when the first explosion of an atomic bomb was mentioned in the USSR. After his return, all cascades were dismantled and replaced by two new sets with essential modifications. No further information was obtained.

9. The high-vacuum soldering apparatus available at the institute included a bell-shaped steel cupola which arrived from Berlin. The unit had allegedly been used to sublimate mirrors on AA searchlights. The bell, 100 to 120 cm in diameter, was provided with three inspection windows. The unit was mounted on a steel table. The high vacuum pump, with its lower parts underground, was installed under the table. On the side, the unit was connected by a pipe line to a vacuum pump. The unit was erected next to the cascades and was last seen when the assembly was completed. Mechanic Hoppmann stated that the unit was to be used for sublimation plating.

10. Tools, semi-finished products, and metals arrived by air from Moscow. Steel and aluminum were repeatedly transported to the institute by truck, while ferro-silicon was shipped in by railroad.

11. The institute area was surrounded by a mesh-wire fence. Guards, armed with rifles or submachine guns, patrolled the outer fence and covered the adjacent

area within a range of more than 1,000 meters. Gate passes were checked by two guards at the institute. Guards armed with pistols were posted at the door of each institute building. A special MVD unit in civilian clothing was stationed at the komendatura. Different gate passes, authorizing the bearer to enter his permanent work place, were issued to engineers, technicians, and auxiliary personnel. Special passes were required to enter more than one installation. 25X1

12. On the following pages are sketches of installations and equipment of the institute.
    a. Location Sketch of the Institutes of Professors Hertz and von Ardenne near Sukhumi.
    b. Layout Sketch of the Professor Hertz Institute.
    c. High Vacuum Soldering Installation.
    d. Nickel Oxide Diaphragm.

1. [redacted] Comment: This is probably Gulripshi (N 42-55, E 41-06). 25X1

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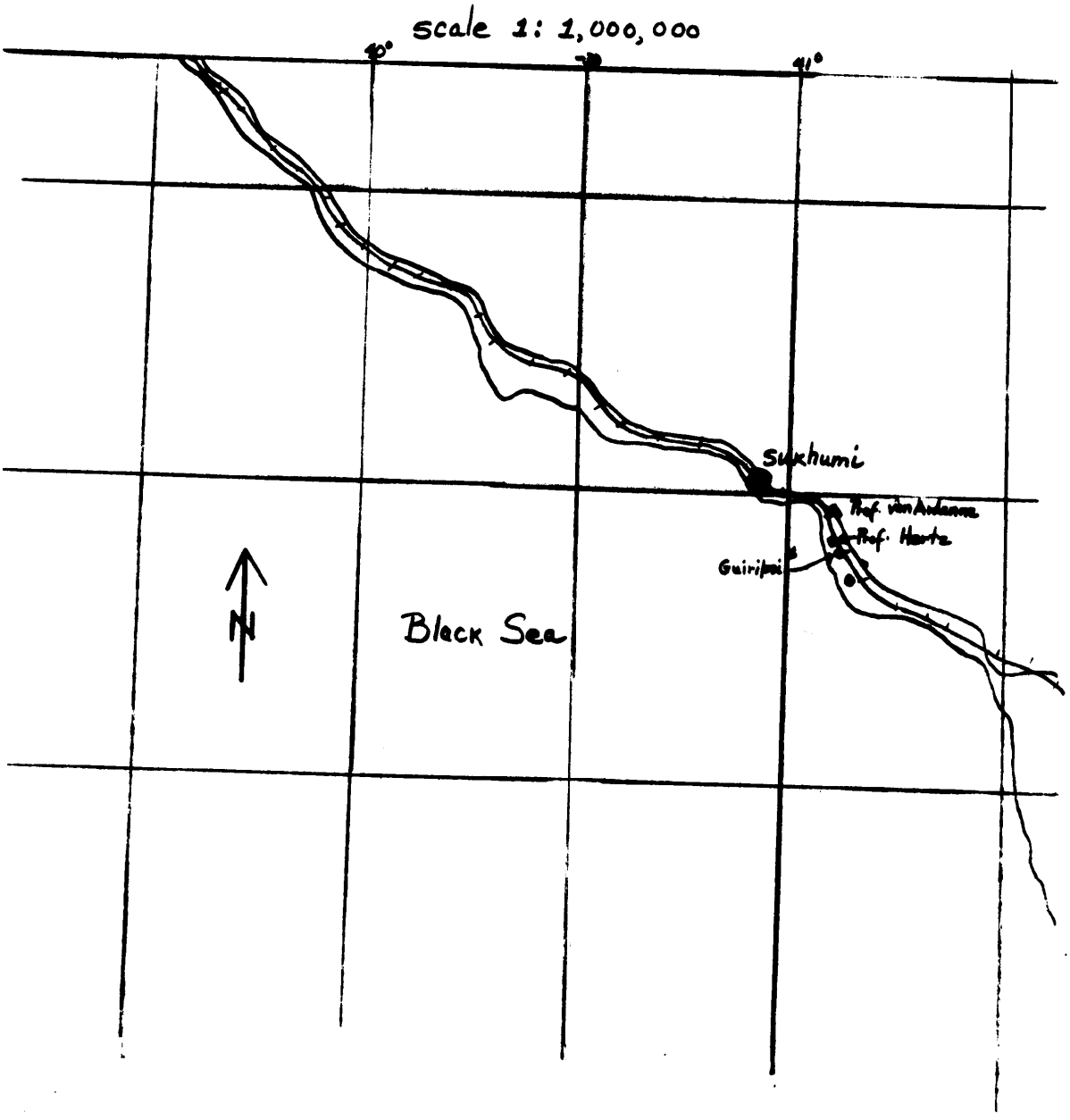
Location Sketch of the Institutes of Professors Hertz and von Ardenne near Sukhumi



Legend to Sketch on Page 8

1. Three-story main institute building, 20 x 60 m, former castle which was rebuilt and painted white. The ground floor housed offices and conference rooms. Laboratories were installed on the second and third floors; the latter also housed the library. American and British magazines with pictures and studies on the V-2 and V-1 were seen here.

2. Former galleries housing laboratories. Several cascades were seen south of the former galleries.

3. New workshop, 8-10 x 20 x 80 m, generally referred to as "Object". The building was attached as an annex to the main institute building and housed the mechanical workshop, two technical offices, the forge, the plumbing shop, and the carpenter shop. The equipment included:

Mechanical Workshop:
- 1 traveling crane
- 1 vertical lathe
- 3 large lathes with height of centers of 200 to 250 mm
- 10 mechanical lathes
- 1 semi-automatic screw cutting machine
- 1 Variomat (sic)
- 2 shaping machines
- 1 large boring machine
- 4 small boring machines

The workshop produced pipes, flanges, vacuum valves, parts for the mass spectrograph, and the cascades for institute requirements. The work force included an average of 20 to 25 men, including Soviet specialists.

Forge :
- 1 Soviet welding apparatus
- 1 large forge fire
- 1 heavy German column-type drilling machine
- 1 large American high-speed planing machine

The forge finished the parts for the cascades and mass spectrographs pre-machined in the mechanical workshop. The work force included one blacksmith, two welders, and two locksmiths.

Plumbing Shop:
- 1 large percussion shears
- 1 automatic shears
- 2 circular machines
- 1 German Raboma-type machine
- 1 Baumgarten-type press
- 1 spot welding machine
- 1 hard soldering set

The plumbing shop had a work force of 5 to 7 men and prepared and machined sheet metal parts.

Carpenter Shop :
- 1 band saw
- 1 planing machine
- 1 small wood working machine

A cold treating installation for the production of rod iron was attached to the carpenter shop. A mobile oxygen generator, received from America on Lend-Lease deliveries, was parked in front of the northern gate to this building.

4. New workshop, 8-10 x 60-80 x 20 m. In November 1949, equipment was still being installed in the machine shop in the southern part of the building. One complete series of 15 D.C. generators was available, and additional series were to be installed. The large switching room next to the machine shop was being completed. The nickel-working shop adjacent to the machine shop was equipped with 1 large roll and three nickel baths. Nickel diaphragms were rolled here. 25X1 a fine netting with 20,000 meshes per square cm was prepared. German experts said that these diaphragms were used by Professor Hertz for isotope separation.

5. Hydrogen plant, located between "Object" and the new workshop. A very large oxygen container was suspended in a steel frame which could be tilted to all sides. The unit was allegedly erected over a canal. The hydrogen plant was specially guarded. 25X1

6. New laboratory, 15 x 50 m, with three-story northern part. The laboratories were put into operation in the summer of 1948. The basement extended over the entire building. The southern part had one large hall. The equipment allegedly included sintering furnaces for diaphragms. 25X1 experiments with uranium and fluoride were conducted in the laboratories. UF_6 was mentioned in this connection. MVD guards were posted in front of each entrance and in the hall.

7. Plant for liquid air, two-story building, 8 x 12 m. All the technical equipment was received from Moscow.

8. Boiler house and gas works, 12 x 20 x 40 m. 25X1

9. Permanent storage building, still under construction.

10. Electrostantsiya, 12 x 20 x 40 m. The installations included one large Diesel unit which was received from the United States in 1947 and 4 "Clark"-type generators. A transformer station for the power received from outside was located in some other part of the institute area.

11. Saw mill, new building constructed in 1948, 6 x 8 x 12 m. Equipped with one large mechanical saw for metals up to 200 mm thick, and one 200-kg pneumatic hammer.

12. 2 temporary wooden storage buildings, 12 x 60 m, for tools, semi-finished products, copper, nickel, brass, chromium nickel and iron rods.

13. Electrolytic department, 5 x 8 x 10 m. The new building was equipped with two round containers, 7 m in diameter and about 8 m high, for oxygen and hydrogen. The installation was put into operation in 1949.

14. Villa of Professor Hertz, three-story building with MVD guard posted in front.

15. Villa of Dr. Schuetz and his family.

16. Quarters of German and Soviet engineers and their families, three-story apartment houses. Additional German families lived in Finnish log houses.

17. PW camp, permanent building, quarters of PW experts.

18. MVD komendatura; the building also housed General Vashavilli's office.

18a Quarters of Soviet labor unit, three-story permanent building housing about 200 engineer troops who did construction work at the institute.

18b Quarters of Soviet MVD guard company. The company was repeatedly seen filed in for inspection and was estimated to have a personnel strength of about 150 men.

19. Finnish log houses.

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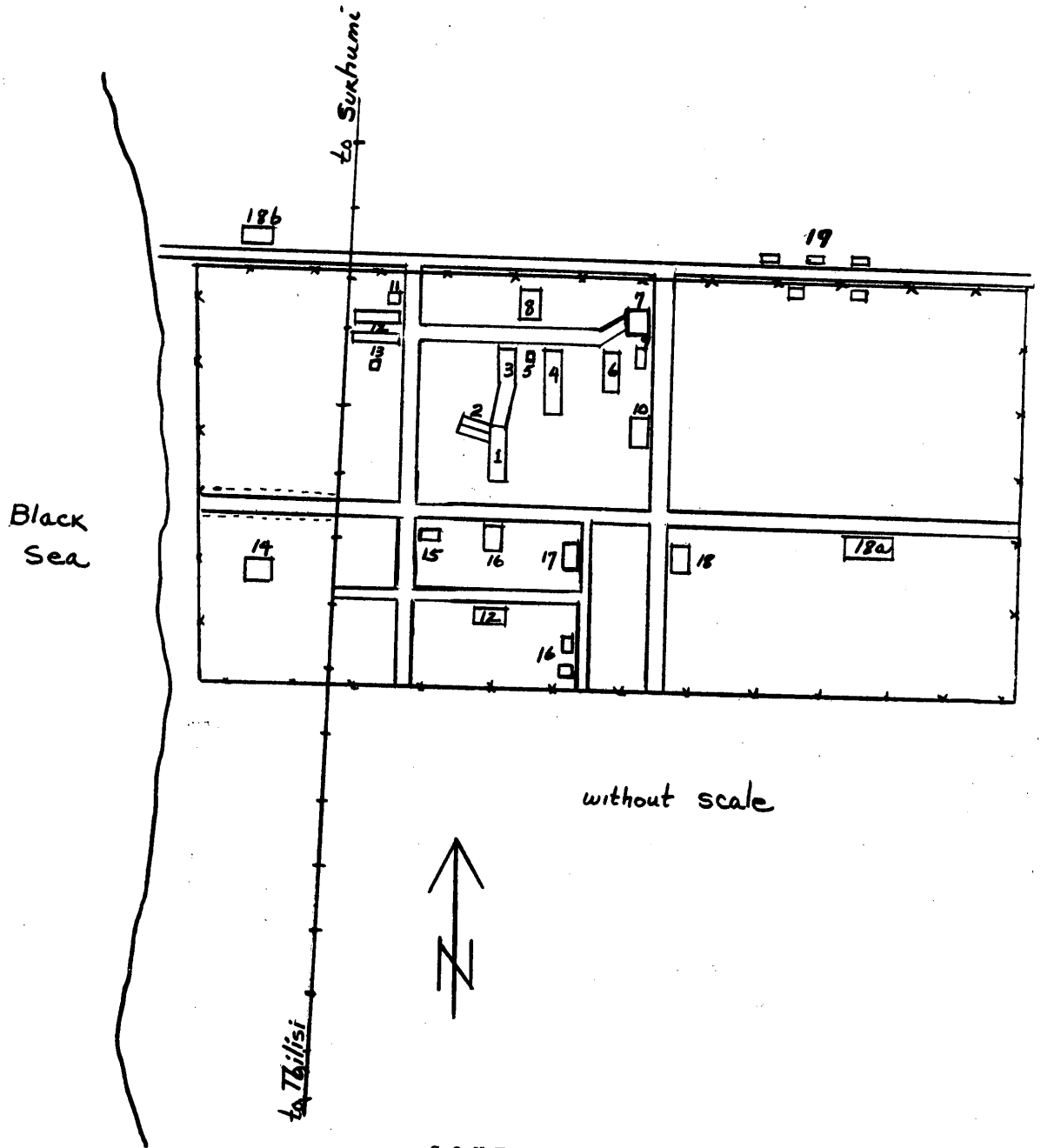
Layout Sketch of the Professor Hertz Institute



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Legend to Sketch on Page 10

1. Steel cupola, 120 cm in diameter.
2. Inspection windows.
3. Rubber sealing ring.
4. Steel table.
5. Ball-shaped container with five liters liquid air.
6. Pre-vacuum pump.
7. High-vacuum pump.
8. Heating elements.
9. Thermometer (not numbered on sketch).

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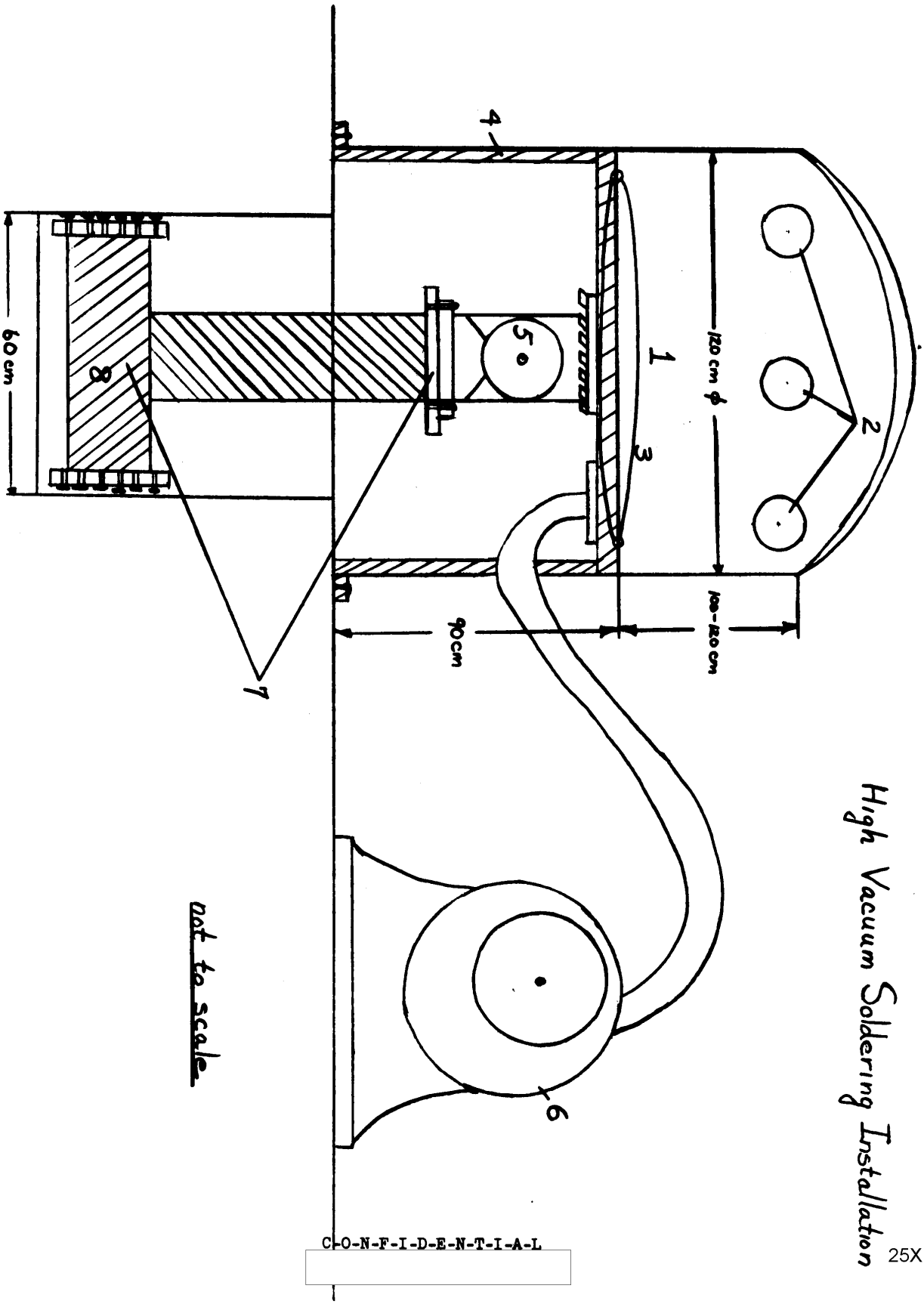

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High Vacuum Soldering Installation

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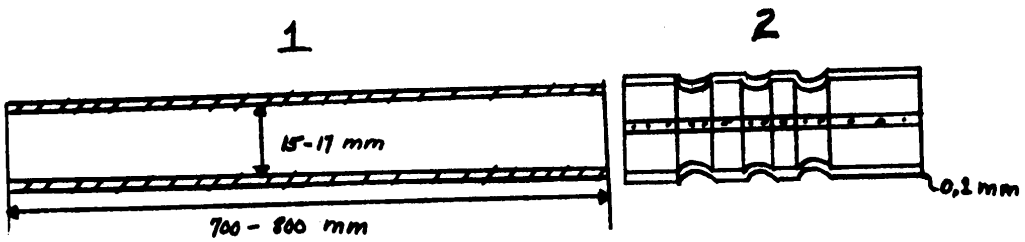
Nickel Oxide Diaphragm



Not to Scale

Legend to Sketch

1. Nickel oxide diaphragm designed by Reichmann.
2. Spring lining of nickel sheet, 0.1 mm thick.

In addition to this type of diaphragm, nickel wire cloth was supplied from Western Europe in sufficient quantities.

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